

ABSTRACT

A lower electrode is formed on a silica glass substrate or a stainless substrate. Through a sputtering process, a thin film of aluminum nitride and/or zinc oxide is formed on the lower substrate so that the degree of dipole-orientation becomes 55% or more, and thereby a piezoelectric thin film is formed. And an upper electrode is formed on the piezoelectric thin film.

A piezoelectric device has a piezoelectric layer made of aluminum nitride and/or zinc oxide. Aluminum nitride and zinc oxide with a crystal structure have inborn piezoelectric characteristics because their crystal structures are not symmetrical, they do not have Curie temperature unlike ferroelectrics, and in aluminum nitride and zinc oxide, magnetic transition does not occur even at high temperature, so that they never lose piezoelectric characteristics until crystal melts or sublimates.